



112706-123.ST25

SEQUENCE LISTING

<110> Look, A. Thomas  
Langenau, David M.

<120> Transgenic Cancer Models in Fish

<130> 112706.123

<140> US 10/659,705

<141> 2003-09-11

<150> US 60/409,585

<151> 2002-09-11

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<220>

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Leu	Lys	His	Lys	Leu	Ser	Lys	Arg	Gly	Tyr	Val	Trp	Lys	Cys	Gln	Ser
			20					25					30		
Ser	Ala	Glu	Glu	Asp	Asp	Thr	Phe	Asn	Lys	Ala	Val	Glu	Glu	Ser	Ser
		35				40					45				
Pro	Asn	Ser	Asp	Arg	Arg	Leu	Gln	Ala	Pro	Ser	Ala	Gly	Gly	Gly	Asn
	50					55				60					
Asn	Ser	Glu	Cys	Leu	Ile	Ala	Arg	Val	Thr	Arg	Ser	Asp	Pro	His	Leu
65					70				75					80	
Arg	Leu	Tyr	Arg	Val	Leu	Arg	Asp	Ala	Gly	Asp	Glu	Ile	Glu	Arg	Ile
			85					90					95		
Tyr	Gln	Arg	Glu	Phe	Glu	Glu	Met	Ser	Gln	Gln	Met	Val	Phe	Asn	Pro
		100					105					110			
Asn	Ser	Ala	Gln	Arg	Ser	Pro	Leu	Thr	Val	Ala	Glu	Glu	Leu	Phe	Arg
		115				120					125				
Asp	Gly	Val	Asn	Trp	Gly	Arg	Ile	Ile	Ala	Phe	Phe	Glu	Phe	Gly	Gly
	130					135					140				
Thr	Met	Cys	Val	Glu	Ser	Val	Asn	Arg	Glu	Met	Ala	Ser	Gln	Val	Asp
145					150				155					160	
Asn	Ile	Ala	His	Trp	Met	Thr	Asp	Tyr	Leu	Asn	Gly	Pro	Leu	Glu	Asn
			165					170					175		
Trp	Ile	Glu	Glu	Asn	Gly	Gly	Trp	Asp	Ala	Phe	Val	Glu	Met	Tyr	Gly
		180					185					190			
Gln	Gln	Arg	Asp	Ser	Val	Phe	His	Pro	Phe	Ser	Tyr	Leu	Thr	Lys	Val
		195					200					205			
Leu	Gly	Leu	Ala	Ala	Leu	Gly	Leu	Ala	Gly	Val	Thr	Ile	Gly	Ala	Phe
	210					215					220				
Phe	Ala	Gln	Lys												
225															

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<220>  
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 Glu Lys Gln His Glu Thr Gly Asn Thr Ile Phe Arg Gly Ser Pro Asp  
 20 25 30  
 Lys Tyr Leu Thr Glu Gln Gly Trp Met Ala Gln Ser Asp Leu Gly Ser  
 35 40 45  
 Arg Ala Leu Val Glu Asp Leu Val Arg Tyr Lys Leu Cys Gln Arg Ser  
 50 55 60  
 Leu Val Pro Glu Pro Ser Gly Ala Ala Ser Cys Ala Leu His Ser Ala  
 65 70 75 80  
 Met Arg Ala Ala Gly Asp Glu Phe Glu Glu Arg Pro Arg Gln Ala Phe  
 85 90 95  
 Ser Glu Ile Ser Thr Gln Ile His Val Thr Pro Gly Thr Ala Tyr Ala  
 100 105 110  
 Arg Phe Ala Glu Val Ala Gly Ser Leu Phe Gln Gly Gly Val Asn Trp  
 115 120 125  
 Gly Arg Ile Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu  
 130 135 140  
 Ser Val Asn Lys Glu Met Ser Pro Leu Leu Pro Arg Ile Gln Asp Trp  
 145 150 155 160  
 Met Val Thr Tyr Leu Glu Thr Asn Leu Asp Arg Trp Ile Gln Ser Asn  
 165 170 175  
 Gly Gly Trp Asn Gly Phe Leu Thr Leu Tyr Gly Asp Gly Ala Ile Glu  
 180 185 190  
 Glu Ala Arg Arg Gln Arg Glu Gly Asn Trp Ala Ser Leu Lys Thr Val  
 195 200 205  
 Leu Thr Gly Ala Val Ala Leu Gly Ala Leu Met Thr Val Gly Ala Leu  
 210 215 220  
 Phe Ala Ser Lys  
 225

<210> 3  
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 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> BCL2 proteins

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 Met Ala His Pro Gly Arg Arg Gly Tyr Asp Asn Arg Glu Ile Val Leu  
 1 5 10 15  
 Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Asp Trp Ala Ala  
 20 25 30  
 Gly Glu Asp Arg Pro Pro Val Pro Pro Ala Pro Ala Pro Ala Ala Ala  
 35 40 45  
 Pro Ala Ala Val Ala Ala Ala Gly Ala Ser Ser His His Arg Pro Glu  
 50 55 60

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Pro Pro Gly Ser Ala Ala Ala Ser Glu Val Pro Pro Ala Glu Gly Leu
65      70      75      80
Arg Pro Ala Pro Pro Gly Val His Leu Ala Leu Arg Gln Ala Gly Asp
      85      90      95
Glu Phe Ser Arg Arg Tyr Gln Arg Asp Phe Ala Gln Met Ser Gly Gln
      100     105     110
Leu His Leu Thr Pro Phe Thr Ala His Gly Arg Phe Val Ala Val Val
      115     120     125
Glu Glu Leu Phe Arg Asp Gly Val Asn Trp Gly Arg Ile Val Ala Phe
      130     135     140
Phe Glu Arg Gly Gly Val Met Cys Val Glu Ser Val Asn Arg Glu Met
145      150     155     160
Ser Pro Leu Val Asp Asn Ile Ala Thr Trp Met Thr Glu Tyr Leu Asn
      165     170     175
Arg His Leu His Asn Trp Ile Gln Asp Asn Gly Gly Trp Asp Ala Phe
      180     185     190
Val Glu Leu Tyr Gly Asn Ser Met Arg Pro Leu Phe Asp Phe Ser Trp
      195     200     205
Ile Ser Leu Lys Thr Ile Leu Ser Leu Val Leu Val Gly Ala Cys Ile
      210     215     220
Thr Leu Gly Ala Tyr Leu Gly His Lys
225      230

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&lt;210&gt; 4

&lt;211&gt; 239

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; BCL2 proteins

&lt;400&gt; 4

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Met Ala His Ala Gly Arg Thr Gly Tyr Asp Asn Arg Glu Ile Val Met
1      5      10      15
Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala
      20      25      30
Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile
      35      40      45
Phe Ser Ser Gln Pro Gly His Thr Pro His Thr Ala Ala Ser Arg Asp
      50      55      60
Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala
65      70      75      80
Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Val Val His Leu Thr
      85      90      95
Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Arg Asp Phe
      100     105     110
Ala Glu Met Ser Arg Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly
      115     120     125
Arg Pro Ala Thr Val Val Glu Glu Leu Phe Arg Asp Gly Val Asn Trp
      130     135     140
Gly Arg Ile Val Ala Phe Glu Phe Gly Gly Val Met Cys Val Glu
145      150     155     160
Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp
      165     170     175
Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn
      180     185     190
Gly Gly Trp Asp Ala Phe Val Glu Leu Tyr Gly Pro Ser Met Arg Pro
      195     200     205

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Leu Phe Asp Phe Ser Trp Leu Ser Leu Lys Thr Leu Leu Ser Leu Ala  
 210 215 220  
 Leu Val Gly Ala Cys Ile Thr Leu Gly Ala Tyr Leu Gly His Lys  
 225 230 235

<210> 5  
 <211> 237  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> BCL2 proteins

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 Thr Asn Arg Thr Asp Gly Ala Glu Glu Asn Gly Glu Gly Ala Ala Gly  
 35 40 45  
 Ala Thr Thr Leu Val Asn Gly Thr Met Asn Arg Thr Asn Ala Ser Ser  
 50 55 60  
 Thr Gly Thr Pro Pro Gln Ser Pro Ala Ser Ser Pro Gln Arg Gln Thr  
 65 70 75 80  
 Asn Gly Ser Gly Gly Leu Asp Ala Val Lys Glu Ala Leu Arg Asp Ser  
 85 90 95  
 Ala Asn Glu Phe Glu Leu Arg Tyr Ser Arg Ala Phe Asn Asp Leu Ser  
 100 105 110  
 Gln Leu His Ile Thr Pro Ala Thr Ala Tyr Gln Ser Phe Glu Ser Val  
 115 120 125  
 Met Asp Glu Val Phe Arg Asp Gly Val Asn Trp Gly Arg Ile Val Gly  
 130 135 140  
 Leu Phe Ala Phe Gly Gly Ala Leu Cys Val Glu Cys Val Glu Lys Glu  
 145 150 155 160  
 Met Ser Pro Leu Val Gly Arg Ile Ala Glu Trp Met Thr Val Tyr Leu  
 165 170 175  
 Asp Asn His Ile Gln Pro Trp Ile Gln Ser Gln Gly Gly Trp Glu Arg  
 180 185 190  
 Phe Ala Glu Ile Pro Gly Lys Asp Ala Ala Ala Glu Ser Arg Lys Ser  
 195 200 205  
 Gln Glu Ser Pro Lys Lys Trp Leu Phe Ala Gly Met Thr Leu Leu Thr  
 210 215 220  
 Gly Val Val Val Gly Gly Leu Ile Ala Gln Lys Arg Leu  
 225 230 235

<210> 6  
 <211> 204  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> BCL2 proteins

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Asn	Ala	Ile	Ser	Asn	Gly	Thr	Ser	Glu	Arg	Pro	Gly	Glu	Gly		
	35				40					45					
Ala	Thr	Gln	Gly	Ile	Val	Glu	Glu	Val	Leu	Gln	Ala	Leu	Leu	Glu	
	50				55					60					
Ala	Thr	Glu	Glu	Phe	Glu	Leu	Arg	Tyr	Gln	Arg	Ala	Phe	Ser	Asp	Leu
65					70					75					80
Thr	Ser	Gln	Leu	His	Ile	Thr	Gln	Asp	Thr	Ala	Gln	Gln	Ser	Phe	Gln
				85					90					95	
Gln	Val	Met	Gly	Glu	Leu	Phe	Arg	Asp	Gly	Thr	Asn	Trp	Gly	Arg	Ile
			100						105				110		
Val	Ala	Phe	Phe	Ser	Phe	Gly	Arg	Ala	Leu	Cys	Val	Glu	Ser	Ala	Asn
			115					120					125		
Lys	Glu	Met	Thr	Asp	Leu	Leu	Pro	Arg	Ile	Val	Gln	Trp	Met	Val	Asn
	130						135					140			
Tyr	Leu	Glu	His	Thr	Leu	Gln	Pro	Trp	Met	Gln	Glu	Asn	Gly	Gly	Trp
145					150					155					160
Glu	Ala	Phe	Val	Gly	Leu	Tyr	Gly	Lys	Asn	Ala	Ala	Ala	Gln	Ser	Arg
				165					170					175	
Glu	Ser	Gln	Glu	Arg	Phe	Gly	Arg	Leu	Leu	Thr	Ile	Val	Met	Leu	Thr
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Gly	Val	Phe	Ala	Leu	Val	Cys	Tyr	Met	Arg	Arg	Arg				
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<210> 7  
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<220>  
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<400> 7

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			20					25					30		
Asn	Arg	Thr	Asp	Thr	Ala	Ala	Glu	Ala	Glu	Met	Asp	Ser	Val	Leu	Asn
		35					40					45			
Gly	Ser	Pro	Ser	Trp	His	Pro	Pro	Ala	Gly	His	Val	Val	Asn	Gly	Ala
	50					55					60				
Thr	Val	His	Arg	Ser	Ser	Leu	Glu	Val	His	Glu	Ile	Val	Arg	Ala	Ser
65					70					75					80
Asp	Val	Arg	Gln	Ala	Leu	Arg	Asp	Ala	Gly	Asp	Glu	Phe	Glu	Leu	Arg
				85					90					95	
Tyr	Arg	Arg	Ala	Phe	Ser	Asp	Leu	Thr	Ser	Gln	Leu	His	Ile	Thr	Pro
			100					105					110		
Gly	Thr	Ala	Tyr	Gln	Ser	Phe	Glu	Gln	Val	Val	Asn	Glu	Leu	Phe	His
		115					120					125			
Asp	Gly	Val	Asn	Trp	Gly	Arg	Ile	Val	Ala	Phe	Phe	Ser	Phe	Gly	Gly
	130					135					140				
Ala	Leu	Cys	Val	Glu	Ser	Val	Asp	Lys	Glu	Met	Arg	Val	Leu	Val	Gly
145					150					155					160
Arg	Ile	Val	Ser	Trp	Met	Thr	Thr	Tyr	Leu	Thr	Asp	His	Leu	Asp	Pro
				165					170					175	
Trp	Ile	Gln	Glu	Asn	Gly	Gly	Trp	Glu	Arg	Phe	Val	Asp	Leu	Tyr	Gly
			180					185					190		
Asn	Asn	Ala	Ala	Ala	Glu	Leu	Arg	Lys	Gly	Gln	Glu	Thr	Phe	Asn	Lys

195                      200                      205  
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 210                      215                      220  
 Leu Leu Ser Arg Lys  
 225

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 20                      25                      30  
 Asn Arg Thr Glu Ala Pro Glu Gly Thr Glu Ser Glu Met Glu Thr Pro  
 35                      40                      45  
 Ser Ala Ile Asn Gly Asn Pro Ser Trp His Leu Ala Asp Ser Pro Ala  
 50                      55                      60  
 Val Asn Gly Ala Thr Ala His Ser Ser Ser Leu Asp Ala Arg Glu Val  
 65                      70                      75                      80  
 Ile Pro Met Ala Ala Val Lys Gln Ala Leu Arg Glu Ala Gly Asp Glu  
 85                      90                      95  
 Phe Glu Leu Arg Tyr Arg Arg Ala Phe Ser Asp Leu Thr Ser Gln Leu  
 100                      105                      110  
 His Ile Thr Pro Gly Thr Ala Tyr Gln Ser Phe Glu Gln Val Val Asn  
 115                      120                      125  
 Glu Leu Phe Arg Asp Gly Val Asn Trp Gly Arg Ile Val Ala Phe Phe  
 130                      135                      140  
 Ser Phe Gly Gly Ala Leu Cys Val Glu Ser Val Asp Lys Glu Met Gln  
 145                      150                      155                      160  
 Val Leu Val Ser Arg Ile Ala Ala Trp Met Ala Thr Tyr Leu Asn Asp  
 165                      170                      175  
 His Leu Glu Pro Trp Ile Gln Glu Asn Gly Gly Trp Asp Thr Phe Val  
 180                      185                      190  
 Glu Leu Tyr Gly Asn Asn Ala Ala Ala Glu Ser Arg Lys Gly Gln Glu  
 195                      200                      205  
 Arg Phe Asn Arg Trp Phe Leu Thr Gly Met Thr Val Ala Gly Val Val  
 210                      215                      220  
 Leu Leu Gly Ser Leu Phe Ser Arg Lys  
 225                      230